CLAIMS

What is claimed is:

1. An apparatus for precisely positioning a medium, comprising:

a spindle configured for mounting the medium on the spindle;

a device coupled to the spindle for rotating the spindle to change the angular position of the medium with respect to a predefined reference position; and

a friction element proximate the spindle, the friction element for braking the spindle at a predetermined position and not allowing a swing back.

2. The apparatus of claim 1, wherein the device comprises a stepper motor.

3. The apparatus of claim 1, wherein the friction element comprises a bar adapted to be pressed against the spindle.

4. An apparatus for precisely positioning a medium, comprising:

a spindle configured for mounting the medium on the spindle;

a stepper motor coupled to the spindle for rotating the spindle to change the angular position of the medium with respect to a predefined reference position; and

a bar adapted to be pressed against the spindle for braking the spindle at a predetermined position and not allowing a swing back.

5. The apparatus of claim 4, wherein the bar comprises a flexible spring.

6. The apparatus of claim 5, further comprising a relay, wherein the bar is connected to the relay.

7. The apparatus of claim 6, wherein the relay is software-controllable.

8. The apparatus of claim 4, wherein the bar comprises a flexible spring, and further comprising an air pressure cylinder, wherein the flexible spring is connected to the air pressure cylinder.

9. The apparatus of claim 4, wherein the bar is made of a metal.

10. The apparatus of claim 9, wherein the metal is aluminum.

11. The apparatus of claim 4, further comprising a low abrasive material, wherein the bar is coated with the low abrasive material.

12. The apparatus of claim 4, wherein the bar is made of teflon-coated steel.

13. The apparatus of claim 4, further comprising means for adjusting a force with which the bar is pressed against the spindle.

14. The apparatus of claim 13, wherein the means for adjusting is a micrometer screw.

15. The apparatus of claim 4, further comprising the medium, wherein the medium comprises a magnetic disk.

16. The apparatus of claim 4, further comprising the medium, wherein the medium is a magnetic tape.

17. The apparatus of claim 4, further comprising the medium, wherein the medium is an optical filter.

18. The apparatus of claim 4, further comprising the medium, wherein the medium is a lens.

19. The apparatus of claim 4, further comprising the medium, wherein the medium is a mirror.

20. An apparatus for precisely positioning a medium, comprising:

a spindle configured for mounting the medium on the spindle;

means coupled to the spindle, for rotating the spindle to continuously change the angular position of the medium with respect to a predefined reference position; and

means for pressing against the spindle, for braking the spindle at a predetermined position and not allowing a swing back.

21. A method for positioning a medium mounted on a spindle at a predefined angular position, the method comprising the following operations:

pressing a friction element against the spindle using a predetermined friction force;

rotating the spindle towards the predefined angular position;

stopping a stepper motor at a predefined encoder signal pulse number $P_{In-x}$ so that a static position of the spindle is achieved between two encoder signal pulses;

rotating the spindle stepwise until an encoder signal pulse $P_{In-1}$ is reached;

moving the spindle to the encoder signal pulse $P_{In}$;

counting the number of steps necessary to move the spindle from the signal pulse $P_{In-1}$ to the signal pulse $P_{In}$; and

based on the number of steps counted, calculating the number of steps necessary to move the spindle to the predefined angular position.

22. The method of claim 21, further comprising the operation of adjusting the predetermined friction force so that oscillations of the spindle are excluded when the stepper motor is stopped at the predefined encoder signal pulse number $P_{In-x}$.

23. The method of claim 21, further comprising the operation of adjusting the predetermined friction force so that the force of static friction, $F_{StSB}$, is greater than a force $F_E$.